UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,674	12/14/2001	Ralph T. Brunner	18602-06593 (P2305C)	9756

758   7590   05/13/2004

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EXAMINER
CHUNG, DANIEL J

ART UNIT	PAPER NUMBER
2672	8

DATE MAILED: 05/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/017,674	BRUNNER ET AL.
	Examiner	**Art Unit**
	Daniel J Chung	2672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>09 February 2004</u>.
2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-72* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-72* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage

        application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Claims 1-72 are presented for examination. This office action is in response to the amendment filed on 2-9-2004.

Information Disclosure Statement

The IDS filed 4-11-2002 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. Specifically, All U.S patents have been considered, but copies of the five other documents and foreign patent documents (EP 0775971) have apparently not been provided, and thus the information referred to therein have not been considered. Applicant must provide copies of these documents if there are to be considered as to the merits.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over

O'Connor et al (5,638,499) in view of Schiller et al (6,049,339), and further in view of

Iwami et al (4,769,636).

Regarding claim 1, O'Connor et al discloses that the a computer-implemented

method (Fig 21) for combining at least two overlapping layers to render an image, the

image containing a plurality of image pixels, each overlapping layer containing a

plurality of layer pixels, each layer pixel corresponding to one of the image pixels, (See

Abstract, col 14 line 20-52) the method comprising: [a'] defining a tile, the tile comprising

a subset of the image pixels delimited according to an area of overlap among a set of at

least two layers, so that a first portion of the image lies within the tile and a second

portion of the image lies outside the tile;] and a) processing the first portion of the

image distinctly from the second portion of the image by, for at least one image pixel in

the defined tile (See Abstract, Fig 14, Fig 16, Fig 21, Fig 22, Fig 23, col 7 line 46-53, col

14 line 20-52, col 14 line 53-col 15 line 23): a.1) initializing an accumulator color value

(MOVE, 2; "RT values of pixel in layer to blend accumulator"); a.2) selecting one of the

layers in the set of at least two layers, the selected layer having a layer pixel

corresponding to the image pixel, the layer pixel having a color value (SET,1;"initialize a

layer index to the topmost layer")a.3) compositing the color value of the layer pixel with

the accumulator color value (COMBINE, 6; "layer i with layer i-1 in BAcc); a.4) storing

the result of a.3) in the accumulator (COMBINE, 6; "blend accumulator"); a.5)

determining whether layer pixels for any remaining layers in the set of at least two

layers should be processed (TEST, 4; 'testing last layer whether it is completed or not');

a.6) responsive to a.5) indicating that layer pixels for any remaining layers should be

processed, repeating a.2) to a.6) (TEST, 4; 'testing last layer whether it is completed or

not'); and a.7) outputting the accumulator color value (CALCULATE, 7; 'calculating final

pixel color').

O'Connor et al does not specifically discloses that subdividing the image as a tile

according to an area of overlap. However, such limitation is shown in the teaching of

Schiller et al. (See Fig 1-8, Abstract, col 6 line 37-col 7 line 65) It would have been

obvious to one skilled in the art to incorporate the teaching of Schiller et al into the

teaching of O'Connor et al, in order to produce faster final composed image with easy

manner [i.e. "reduce the amount of computation and speed processing in the processing

of transparency" See col 7 line 62-65 in Schiller et al], as using "tile" structure is also

advantageously desirable in the teaching of O'Connor et al for performing image

composition with multiple layers with minimized hardware (i.e. less memory, as tiles can

be treated as one group of embodiment in memory) at faster processing time (i.e.

eliminate repetitious calculations for invisible tiles).

Further, although O'Connor et al does not explicitly disclose that "defining a tile,

which a subset of the image pixels delimited according to an area of overlap...", such

feature is again shown in the teaching of Iwami et al. (See Abstract, Fig 3-4, Fig 8b, Fig

10b, Fig 12b, Fig 16, col 3 line 21-60, col 13 line 12+) [i.e. dividing the object window

["layer" in recited claims] into subregions, until the subregion ["tile" in recited claims] is

not overlapped with the reference window] It would have been obvious to one skilled in

the art to incorporate the teaching of Iwami et al into the teaching of O'Connor et al [i.e.

the overlapped portions are separately calculated/executed with other regions of

windows/layers], in order to eliminate the unnecessary calculation [i.e. repetitious

calculations on overlapped regions] for composing the final image, as such

improvement is also desirable in the teaching of O'Connor et al for manipulating

overlapped portion of a plurality layers, thereby performing image composition with

multiple layers at faster processing time without complex calculation.

Regarding claim 2, O'Connor et al discloses that wherein each layer pixel has an

opacity value, and wherein (See Abstract, Fig 14, Fig 16, Fig 21, Fig 22, Fig 23, col 7

line 46-53, col 14 line 20-52, col 14 line 53-col 15 line 23): a.1) further comprises

initializing an accumulator opacity value (MOVE, 2); a.3) further comprises compositing

the opacity value of the layer pixel with the accumulator opacity value (COMBINE, 6);

and a.5) comprises determining whether the accumulator opacity value indicates full

opacity (TEST, 5).

Regarding claim 3, O'Connor et al discloses that wherein a.2) comprises

selecting a topmost remaining layer in the set of at least two layers. (See col 7 lien 46-

53, col 9 line 27-39, col 18 line 6-18)

Regarding claim 4, O'Connor et al discloses that wherein a.7) comprises outputting the accumulator value to a frame buffer. (See Fig 16, col 14 line 20-52)

Regarding claim 5, O'Connor et al discloses that further comprising: b) displaying the image. (See Fig 16, col 14 line 20-52)

Regarding claim 6, O'Connor et al discloses that further comprising: b) repeating a) for each image pixel in the defined tile. (See Abstract, col 14 line 20-50, col 14 line 53-col 15 line 23)

Regarding claim 7, O'Connor et al discloses that wherein a) comprises performing a.1) through a.7) for at least two image pixels concurrently. (See Abstract, col 11 line 49-52, col 14 line 20-50, col 14 line 53-col 15 line 23)

Regarding claim 8, O'Connor et al discloses that further comprising: b) concurrently with a), for a second image pixel in the defined tile (See Abstract, Fig 14, Fig 16, Fig 21, Fig 22, Fig 23, col 7 line 46-53, col 11 lien 34-52, col 14 line 20-52, col 14 line 53-col 15 line 23): b.1) initializing a second accumulator color value (MOVE, 2); b.2) selecting one of the layers in the set of at least two layers, the selected layer having a second layer pixel corresponding to the second image pixel, the second layer pixel having a color value (SET, 1); b.3) compositing the color value of the second layer pixel

with the second accumulator color value (COMBINE, 6); b.4) storing the result of b.3) in

the second accumulator (COMBINE, 6); b.5) determining whether layer pixels for any

remaining layers in the set of at least two layers should be processed (TEST, 4); b.6)

responsive to b.5) indicating that layer pixels for any remaining layers should be

processed, repeating b.2) to b.6) (TEST, 4); and b.7) outputting the second accumulator

color value (CALCULATE, 7).

Regarding claim 9, O'Connor et al discloses that wherein at least one of the

layers in the set of at least two layers is non-rectangular. (See Fig 4, Fig 22)

Regarding claim 10, O'Connor et al discloses that wherein at least one pixel of at

least one of the layers in the set of at least two layers is transparent, and wherein a.3)

comprises: a.3.1) responsive to the layer pixel being transparent, retaining the

accumulator color value; and a.3.2) responsive to the layer pixel not being transparent,

compositing the color value of the layer pixel with the accumulator color value. (See

steps 5,6,7 of Fig 21)

Regarding claim 11, O'Connor et al discloses that further comprising: b')

repeating a') and a) for at least one second defined tile. (See Abstract, Fig 21)

Regarding claim 12, O'Connor et al discloses that wherein each layer comprises a window, and wherein the image comprises a display for a windowing system. (See Fig 14, Fig 15, Fig 22, Fig 23; Also See Fig 13-18 in Satoh)

Regarding claim 13, refer to the discussion for the claim 1 hereinabove, O'Connor et al further discloses that wherein a first one of the layers in the set overlaps a second one of the layers in the set, and wherein each layer comprises bounds defined by edges, and wherein at least one edge of the first layer lies within the bounds of the second layer, and wherein a') comprises: subdividing the second layer along a line corresponding to an extension of the at least one edge of the first layer that lies within the bounds of the second layer. (See Abstract, Fig 14, Fig 16, Fig 21, Fig 22, Fig 23, col 7 line 46-53, col 11 lien 34-52, col 14 line 20-52, col 14 line 53-col 15 line 23; Also See Fig 1, Fig 2, in Randall)

Regarding claim 14, O'Connor et al discloses that wherein: a.2) comprises selecting one of the layers in the set of at least two layers, the selected layer having a layer pixel corresponding to the image pixel, the layer pixel having a color value and an alpha value; and a.3) comprises compositing the color value of the layer pixel with the accumulator color value, using the alpha value. (See Fig 2, Fig 14, Fig 21, Fig 23)

Regarding claims 15-28, claims 15-28 are similar in scope to the claims 1-14, and thus the rejections to claims 1-14 hereinabove are also applicable to claims 15-28.

Regarding claims 29-42, claims 29-42 are similar in scope to the claims 1-14,

and thus the rejections to claims 1-14 hereinabove are also applicable to claims 29-42.

Regarding claims 43-56, claims 43-56 are similar in scope to the claims 1-14,

and thus the rejections to claims 1-14 hereinabove are also applicable to claims 43-56.

Regarding claim 57, refer to the discussion for the claim 1 hereinabove,

O'Connor et al discloses that the claimed feature of an image containing a plurality of

layers, wherein a first one of the layers overlaps a second one of the layers, and

wherein each layer comprises bounds defined by edges, and wherein at least one edge

of the first layer lies within the bounds of the second layer, a method of subdividing tiles,

(See Abstract, Fig 1, Fig 2, Fig 4, Fig 21-23) comprising: [subdividing the second layer

along a straight line corresponding to an extension of the at least one edge of the first

layer that lies within the bounds of the second layer, to obtain two tile subdivisions; and

storing, in a tile list, a representation of at least a subset of the obtained file

subdivisions].

O'Connor et al does not specifically discloses that "subdividing the second layer

along a straight line corresponding to an extension of the at least one edge of the first

layer that lies within the bounds of the second layer...". However, such limitation is

shown in the teaching of Schiller et al. (See Fig 1-8, Abstract, col 6 line 37-col 7 line 65;

Also See Abstract, Fig 3-4, Fig 8b, Fig 10b, Fig 12b, Fig 16, col 3 line 21-60, col 13 line

12+ in Iwami et al) It would have been obvious to one skilled in the art to incorporate the

teaching of Schiller et al into the teaching of O'Connor et al and/or Iwami et al, in order

to eliminate the unnecessary calculation [i.e. repetitious calculations on overlapped

regions] for composing the final image, as such improvement is also desirable in the

teaching of O'Connor et al for manipulating overlapped portion of a plurality layers,

thereby performing image composition with multiple layers at faster processing time

without complex calculation.

Regarding claims 58-60, refer to the discussion for the claim 57 hereinabove,

Schiller et al discloses that repeating the subdividing step using at least one of the

obtained file subdivisions, joining at least two adjacent file subdivisions in the tile list

with response to at least two adjacent tile subdivisions including portions of the same

set of identical layers as one another. (See Fig 1-8, Abstract, col 6 line 37-col 7 line 65;

Also See Abstract, Fig 3-4, Fig 8b, Fig 10b, Fig 12b, Fig 16, col 3 line 21-60, col 13 line

12+ in Iwami et al)

Regarding claims 61-72, claims 61-72 are similar in scope to the claims 57-60,

and thus the rejections to claims 57-60 hereinabove are also applicable to claims 61-72.

Response to Arguments/Amendment

Applicant's arguments with respect to claims 1-72 have been considered but are moot in view of the new ground(s) of rejection. Specifically, in response to the Applicant's argument that technique of subdividing the image as a tile, newly submitted references (Schiller et al, Iwami et al) clearly discloses that "dividing the image/object into the tiles according to an area of overlap". (See the rejection hereinabove)

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Chung whose telephone number is (703) 306-3419. He can normally be reached Monday-Thursday and alternate Fridays from 7:30am- 5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael, Razavi, can be reached at (703) 305-4713.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the Technology Center 2600 Customer Service Office

whose telephone number is (703) 306-0377.

djc
April 16, 2004

JEFFERY BRIER
PRIMARY EXAMINER